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Importance of carbon isotopic data of the Permian-Triassic boundary layers in the Verkhoyansk region for the global correlation of the basal Triassic layer

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Abstract

© 2015, Pleiades Publishing, Ltd. This paper is dedicated to a global correlation of marine Permian-Triassic boundary layers on the basis of partially published and original data on the δ13Corg and δ13Ccarb values of the Suol section (Setorym River, South Verkhoyansk region). The section consists of six carbon isotopic intervals, which are easily distinguishable in the carbon isotopic curves for a series of Permian-Triassic reference sections of Eurasia and Northern America, including paleontologically described sections of Central Iran, Kashmir, and Southern China. This suggests that the Permian-Triassic boundary in the Suol section is close to the carbon isotopic minimum of interval IV. In light of new data, we suggest considering the upper part of the Late Permian Changhsingian Stage and the lower substage of the Early Triassic Induan Stage of Siberia in the volumes of the rank Otoceras concavum zone and the Tompophiceras pascoei and Wordieoceras decipiens zones, respectively. The O. concavum zone of the Verkhoyansk region probably corresponds to the Late Changhsingian Hypophiceras triviale zone of Greenland. The carbon isotopic intervals II, III, IV, and V in the Permian-Triassic boundary layers of the Verkhoyansk region traced in a series of the reference sections of Eurasia correspond, most likely, to intensification of volcanic activity at the end of the Late Changhsingian and to the first massive eruptions of Siberian traps at the end of the Changhsingian and the beginning of the Induan Stages. New data indicate the possible survival of ammonoids of the Otoceratoidea superfamily at the species level after mass extinction of organisms at the end of the Permian.

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